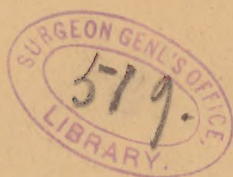


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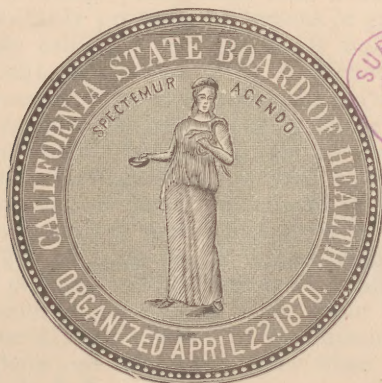
OF

Dwellings, Public Buildings, and Thoroughfares.

By J. H. DAVISSON, M.D., of Los Angeles,

Member of the State Board of Health, ex-President of Los Angeles Medical Society,
Member of American Public Health Association, Member of American Medical
Association, Member of California State Medical Society, etc.

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SANITATION OF DWELLINGS, PUBLIC BUILDINGS, AND THOROUGHFARES.

By J. H. DAVISSON, M.D., of Los Angeles, member of State Board of Health, ex-President of Los Angeles Medical Society, member of American Public Health Association, member of American Medical Association, member of California State Medical Society, etc.

There is no department of sanitary medicine which concerns the masses as does domestic sanitation and sanitation of public buildings and thoroughfares. Their hygiene is not a subject of interest at intervals, like many other departments of our art, but always a live issue, and of paramount importance, because it involves the health and life of every individual at all times and places.

Household sanitation properly includes not only a consideration of the house and all that is contained in it, but its environs as well; but it is not the object of this paper to enter into tedious details of location and construction, but to treat of the divisions of this subject in a restricted sense, to avoid a paper of too great length, dealing more particularly with sanitation of the interior.

All buildings, both public and private, should be located on high and dry ground, and with reference to the air currents or wind and sunshine. Residences and public buildings should be constructed, where admissible, upon the detached or cottage plan, rather than in rows and palatial, and upon foundations suitably prepared of cement or grout (except in California, where simply brick answers for small buildings), with proper elevation and thorough ventilation under the structure. One-story cottages properly planned and elevated, with good attics, may be constituted comfortable and hygienic residences; but in the revival of the colonial style of architecture—with a few modifications—the two-story residence is both artistic and convenient, economical and sanitary, and well adapted to any climatic conditions. Frame or wooden houses are best for our climate, while brick is most satisfactory in cold climates. The Spanish idea of *patios*, or large courts instead of dark rooms, in large buildings for every purpose, is to be commended, and our advanced civilization should discountenance piling brick, stone, iron, and mortar, or other building material, heavenward in the unsanitary effort to build domicile upon domicile and office upon office, when nature has provided so much territory. Indeed, the tall tower, monument, or church spire is but little in advance of the pyramids, and might, without irreverence, be displaced with something new, rational, sensible, and sanitary in our progressive age of reason. The tall church spires are sometimes more pleasing to the senses than many of their adornments. Imagine the spectacle of the angel Gabriel impaled upon a church spire, blowing his last trump! Such was the adornment of the First Presbyterian Church of the city of Los Angeles, until years of ridicule caused it to be displaced a few years ago by a globe as an emblem.

Every room, both public and private, should be large and well arranged for sunlight, heat, and ventilation. All plumbing should be done with reference to sanitary results, and, where possible, should be

open for constant inspection, and all fixtures properly trapped and vented to avoid siphonage. McClellan's automatic venting, though a little expensive, is probably the best for security against sewer-gas. All fixtures and plumbing in every building should be in constant use, or be frequently flushed, to prevent the seal of the traps being broken by evaporation, which soon occurs in our dry and airy climate. This may occur to summer residences and hotels at the seashore or in the mountains, and may occur to school-houses during vacation. All water-closets should be supplied with modern automatic flush tanks, properly connected to avoid siphonage or other accidents; and with plenty of water, care in construction, and good plumbing, these modern, odorless, and consequently sanitary closets, can be easily kept in order, and may be placed in any building with comparative safety.

Every house, private or public, should be properly heated, lighted, and well ventilated. It is a mistake, in California, or in any other similarly mild climate, to plan and construct houses, residences, or other buildings, without providing suitable heating apparatus. Although for the greater part of the year no artificial heat is required for health and comfort, still, in marine climates and near mountain regions the meteorological conditions are such as to require artificial heat for both health and comfort for a period of two or three months during the year. It is to be regretted that many residences and school-houses, and other public buildings, have been constructed with an utter disregard for heating—not being supplied with grates, furnaces, stoves, or steam or hot water heaters, and without flues or chimneys. In consequence of these gross defects in construction, and for other reasons—false economy—many resort to the vilest of all methods of heating, or attempting to heat, with kerosene lamps and stoves, and as a result such chambers are poorly heated, and filled with the unsavory fumes of kerosene, and they burn out the life-giving oxygen and replace it with noxious carbon dioxide. This condition of things is deplorable, though quite universal and most unsanitary. The statement has been often made that architects have not kept pace with the sanitarian, a statement which is oftentimes provoked by the false notions of economy of the householder, rather than lack of knowledge on the part of the architect and builder. Gas stoves and grates properly constructed are less objectionable on the score of accidents, than kerosene stoves or lamps, and are more satisfactory for heating in our climate, but they are not as sanitary as open grates or hot air furnaces with pure air intakes. Steam or hot water is very satisfactory for large buildings, and especially in cold climates where much heat is required with constancy.

The question of properly heating thoroughfares is even more difficult to handle than that just considered, and as yet no plan in use is entirely satisfactory. The trouble is not altogether one of heating, but also of ventilation. Several years ago my friend, Dr. Reed, of Mansfield, Ohio, made extensive observations with reference to heating coaches and sleeping cars on railway trains, and found such varying temperatures at short intervals, owing to circumstances connected with running, stopping, etc., and after investigating the then methods of steam heating, he concluded that no method in use was satisfactory, and that no advance in that direction had been made in years.

Heating of steamships offers much less difficulty, and we will pass it with this statement. Heating and ventilation are separated in theory

but associated in practice. However correct this may be, provision for proper ventilation or pure air currents to displace dead or impregnated air should be made in all buildings, regardless of heating and independent of it. For large buildings and institutions the fan system of ventilation is now much in vogue, but its principal objection is the cost of maintaining it.

The water supply of every building, railway coach, sleeping car, or steamship is of the greatest importance. It is needless to say that the source should, if possible, be free from any suspicion of contamination, and the supply abundant and pure. In view of the possibility of pollution and the fact that there are so many hidden sources of infection, all drinking water should be recently filtered or sterilized by boiling. The Pasteur germ-proof or porcelain filter is probably the best, and can be and should be applied to the filtration of drinking water in dwellings, public buildings, and thoroughfares. It is simple in construction, easily attached to fixtures, easily cleansed, and not expensive. When there is danger of pollution or a suspicion of pathogenic germs, and a suitable filter is not in use, the water should be boiled, as boiling destroys all pathogenic germs in ten minutes. (Sternberg.) If boiling does render drinking water rather unsavory, it has the advantages of being effectual in the face of danger from infection, and it is within the reach of the most impecunious. Next to the air we breathe, water is probably the most important element in nature, and it should not only be pure but abundant. The British War Department allows fifteen gallons of water daily to each soldier, and this quantity contemplates a sponge bath. Cities and towns require more, while American cities allow about fifty gallons daily per capita, and some even more. (Rohe's Hygiene.)

Since ice has gone into such general use, its purity should always be tested by competent inspection before it goes to the consumer. If natural ice, its source should be guarded to prevent pollution, as freezing does not destroy pathogenic germs, notably the bacillus of Eberth, which is often found in natural ice. In the manufacture of ice all water should be distilled prior to freezing. While a member of the City Board of Health of Los Angeles, a few years ago, I introduced a resolution directing an ordinance which should require all artificial ice to be made from distilled water. A storm of indignation by certain ice factories followed, and I was accused of complicity with a few factories which distilled the water prior to freezing. But the resolution, which seemed at first so objectionable to certain factories, had the desired effect, as it corrected many errors and much carelessness in all the details of manufacture, and had the effect of calling the attention of consumers to the necessity of knowing the source and quality of their ice supply.

Although not properly within the purview of this paper, you will permit me to say that the average American eats, as he does everything else, in a hurry, and does not give that care to the selection and preparation of food products that their importance demands. Man being omnivorous, requires a greater variety of foods than other animals, and also requires that it shall be properly prepared or cooked prior to ingestion; and most foods which require cooking should be either boiled, baked, roasted, broiled, or steamed; but few should be fried. On coming to California most every one learns that California fruits are healthful, and acting upon that fact they eat to excess of oranges, grapes, figs, pears, peaches, apricots, strawberries, olives, etc., forgetting their capacity

for fruits, and suffer from digestive disturbances in consequence. Many in like manner learn that our California wines are healthful, and drink them regardless of indications, or, rather, contra-indications. Alcoholics are not essentially foods, and can be dispensed with in most cases, except where indicated for certain chronic ailments of nutrition, and their judicious use in health as table beverages. Though alcoholics have valuable therapeutic indications, as in severe fevers, like typhoid, typhus, pneumonia, etc., to arrest retrograde changes due to the temperature—than which there is no more potent agency—yet most persons in health are better without them.

Perhaps the most unsanitary features of dwellings, public buildings, and thoroughfares to-day are the furnishings—the carpets, curtains, draperies, and upholstery, to say nothing of the odious folding-beds in use in private and public houses. With tuberculosis unrestricted, heavy woolen carpets, rugs, curtains, and upholstery, as found in most all residences, offices, public buildings, elevators, and such thoroughfares as sleeping cars and steamships, are hotbeds of infection and furnish conditions favorable for the reception, retention, and spread of tuberculosis, diphtheria, scarlet fever, and all diseases due to microbes and infections. These filthy woollens, chenilles, and plushes will retain the bacillus tuberculosis in a potential condition for two and one half months, or even longer, when hidden in these fabrics from the sunlight, as they are usually located in apartments. Tuberculous patients scatter the bacilli in the streets, railway coaches, sleepers, steamships, elevators, in fact, everywhere, and the sputum dries and becomes pulverized and floats in the air along with particles of dust, and the common mode of infection is the inhalation of these bacilli by the weak and delicate. The bacilli, also floating about in the air currents, lodge in drinking water and fall upon articles of food which do not require cooking, and are swallowed, which is the next most common mode of infection or spread of the disease. The same is true, in less degree, of other pathogenic microbes. How often is infection transported from town to town, and from State to State, and from continent to continent by means of the filthy carpets, plushes, and hangings of sleeping cars and steamships! Welcome the day when sanitary science or fashion, which plays so important a part in our sociology, shall put an end to all these unsanitary furnishings and suggest something better in their stead. The genius of fashion that suggested the painted and inlaid floors instead of carpets, and wooden and leather furniture, with now and then iron or brass, instead of so much upholstery, made long strides in the right direction; but, unfortunately, these hygienic, rational, and beautiful finishings and decorations have not become universal, though there is yet hope for these beneficent innovations. Inlaid or painted floors, linoleums properly treated, with movable rugs of light materials, which can be easily cleansed, constitute the most sanitary finishings and furnishings at our command for all buildings and thoroughfares.

The restriction of infection by police regulations or quarantine is not absolute in practice. The history of every epidemic of cholera has proven the correctness of this statement, as with other germ-producing diseases; hence, we can only lessen the chances of infection by doing away with elements favorable for habitat and transportation.

The question of restriction of tuberculosis by restraint or relative quarantine, from the nature and circumstances of development, con-

fronts us with greater difficulties than all other infectious or preventable diseases combined, and from its prevalence and fatality it heads the list in importance. To-day every thoroughfare, elevator, public building, and many of our residences are filled with the fatal bacillus tuberculosis, which find lodgment in the unsanitary furnishings above mentioned. If we cannot quarantine the bacillus, we can render it homeless, in a measure, by substituting hygienic decorations and furnishings.

Cranberg experimented with many materials for removing the germs of infection from painted floors, walls, carpets, furniture, etc., and gave the preference to moist sponges; while others, including the Philadelphia Board of Health, recommended fresh bread. Many cities in France make obligatory a disinfection after death from tuberculosis, and the Philadelphia Board of Health, March 6th, declared consumption infectious, and recommended disinfection after death or removal. The plan in many German public institutions of supplying tuberculous patients with cuspidors containing a solution of bichloride of mercury (1 to 700), which should be acid and 1 to 500, and compelling patients to use them, should not be considered a hardship, and can be applied to buildings and thoroughfares.

The analysis of mortuary statistics in Massachusetts since the establishment of the Massachusetts State Board of Health, in 1870, by J. F. Allyn Adams, is most interesting, but conclusions are not always up to expectations. He concludes that since 1870 the death-rate is practically unchanged by sanitation. Though consumption has declined, and pneumonia, bronchitis, cancer, diseases of the brain, heart, and kidneys (diseases which are not preventable) have increased, the diseases of childhood, which include most preventable diseases, have been reduced 30 per cent by sanitation. (Wyman and Banks, Annual, 1893.)

The desire to cover the important points of this paper, together with the fact that the hygiene of residences can be applied with little variation to public buildings and thoroughfares in the main, led me to select so comprehensive a title, believing that the repetition of hygienic facts by sanitarians, and their enunciation and publication by Boards of Health, are the best means of educating the masses and disseminating correct ideas of sanitation.

